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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,857	06/21/2001	Phillip S. Wilson	P 281189	6439

909 7590 09/11/2002
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MCLEAN, VA 22102

EXAMINER

VO, HAI

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 09/11/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,857

Applicant(s)

WILSON, PHILLIP S.

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1, drawn to a structural foam article.

Group II, claim(s) 2, drawn to a method of producing a structural foam article.

2. The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Claim 1 is obvious over Karande et al (US 5,717,000) (see rejections below). As the recited structure does not make a contribution over the prior art, unity of invention is lacking and restriction is appropriate.
3. During a telephone conversation with Kenneth Fagin on 08/21/2002 a provisional election was made with traverse to prosecute the invention of Group I, claim 1. Affirmation of this election must be made by applicant in replying to this Office action. Claim 2 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al (US 5,717,000) in view of Okada et al (US 4,739,007). Karande discloses a polymer foam comprising a styrenic polymer, organophilic multi-layered particles in an amount of 3 wt% and one blowing agent in an amount of about 3 wt% (abstract, ^{Karande} table III). ~~Okada~~ is silent as to the thickness of the reinforcing particles. Okada teaches a composite material comprising a thermoplastic polymer and layers of a silicate wherein each of the silicate layers is 7 to 12 angstroms thick and the interlayer distance being at least 20 angstroms (abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the reinforcing particle having the thickness as taught in Okada motivated by the desire to impart the mechanical strength and temperature resistance of the foam (Okada, column 3, lines 26-30). The combination of the cited references fails to disclose or teach the distribution of the reinforcing particles of different thickness in the polymer matrix. However, such a feature would have been recognized by one skilled in the art as a result effective variable to control the degree of viscosity and reinforcing effect of the particles such that the too many thicker particles produce a viscosity high enough to make the handling and mixing of the product more difficult

whereas too many thinner particles leads to a reduction of mechanical strength and impact resistance. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the reinforcing particles having the thickness instantly claimed since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al (US 5,717,000) in view of Christiani et al (US 5,747,560). Karande discloses a polymer foam comprising a styrenic polymer, organophilic multi-layered particles in an amount of 3 wt% and one blowing agent in an amount of about 3 wt% (abstract, table III). Karande is silent as to the thickness of the reinforcing particles. Christiani teaches a composite material comprising a thermoplastic polymer and platelet particles having an average thickness of less than 5 nm and a maximum thickness of 10 nm (abstract). Christiani further teaches the platelet particles comprising less than about 5 layers in thickness (column 6, lines 61-65). Likewise, it is readily apparent that each layer of the platelet particles has a thickness of less than 1nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the reinforcing particle having the thickness as taught in Christiani motivated by the desire to impart the mechanical strength and temperature resistance of the foam. The combination of the cited references fails to disclose or teach the distribution of the reinforcing particles of different thickness in

the polymer matrix. However, such a feature would have been recognized by one skilled in the art as a result effective variable to control the degree of viscosity and reinforcing effect of the particles such that the too many thicker particles produce a viscosity high enough to make the handling and mixing of the product more difficult whereas too many thinner particles leads to a reduction of mechanical strength and impact resistance. In an absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the reinforcing particles having the thickness instantly claimed since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

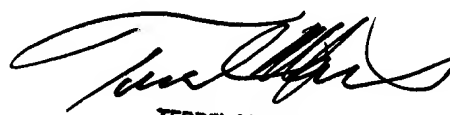
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426. The examiner can normally be reached on Monday to Friday, 8:30 to 5:00 (EAST). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

HV
August 29, 2002



TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700